JANUARY 1, 1990 WATER SUPPLY OUTLOOK

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GENERAL OUTLOOK FOR MONTANA

Snowpacks vary from well below average along the western and southwestern part of the State to well above average in smaller mountain ranges of central Montana. Mountain precipitation accumulation since October 1 is above average in most drainages. Irrigation reservoir storage is above average in most areas. Streamflows are forecast to be below average for most areas west of the Divide and in southwest Montana. Forecasts for other areas are generally for average or above average runoff.

SNOWPACK

Snowfall began accumulating a little later than normal and lower elevations in the northern part of the State showed considerable melt in mid-November. Snowpacks range from well below average along the western edge of the State to well above average in the central Montana and in the Bighorn Mountains of Wyoming. West of the Divide, snowpacks are well below average in the Kootenai, Bitterroot and Lower Clark Fork River Drainages, below average in the Upper Clark Fork Drainage and near to a little below average in the Flathead River Drainage. East of the Divide, below average snowpack is present in the Yellowstone, Madison, and St. Mary River Drainages. Snowpacks in the southern portion of the Madison and Red Rock River drainages are well below average. Near average snow accumulation is present in the Gallatin, along most of the Missouri Mainstem, Sun, Marias, Teton and Upper Yellowstone River Drainages. Above average snowpack covers most of the Smith, Judith and Musselshell Drainages. Well above average snow was noted in the Snowy Mountains near Lewistown and in the Bighorn Mountains of Wyoming. By January 1, approximately 40 percent of the season's snowpack has accumulated.

PRECIPITATION

Mountain precipitation in October was near to above average in most drainages. November was again wet over most the State with well above average moisture occurring over the northern part of the State. Near to above average amounts fell over the rest of the mountain watersheds except for the Madison and Jefferson River Headwaters where amounts were below average. December totals were variable across the State. Below average increments occurred in all drainages west of the Divide and in the Sun, Teton, Marias, Jefferson and Madison River Drainages, east of the Divide. The Gallatin, Upper Yellowstone, Missouri Mainstem and St. Mary Drainages received near average moisture. Well above average totals were recorded in central Montana and in the Bighorn Mountains of Wyoming. Since October 1, the season's totals for mountain precipitation are well above average in the Bighorn Mountains, the Flathead, Smith, Judith, Musselshell, Sun, Teton, Marias, St. Mary River Drainages and in all of the smaller mountain ranges of central Montana. Below average totals have been recorded in the Bitterroot, Jefferson and Madison River Drainages. All other areas in the State have near or above average moisture so far this season.

RESERVOIRS

Most irrigation reservoirs in the State have average or above average storage as a result of some carryover, runoff from fall rains and runoff from early winter snowmelt. Exceptions include Lima, Clark Canyon and Ruby Reservoirs in southwest Montana and Deadman's Basin and Smith Reservoirs in central Montana. Most larger multipurpose reservoirs have average or above average storage for this time of year. Fort Peck Lake and Canyon Ferry Reservoir are exceptions where current storage is below average.

STREAMFLOW

Since October 1, accumulated streamflows have been well above average on streams in northern Montana as a result of low elevation snowmelt and rainfall runoff in mid-November. Runoff totals for other areas were generally near to below average for the past three months. West of the Divide, spring and summer streamflows are forecast to be 85 to 90 percent of average on the Flathead River Drainages and 75 to 80 percent of average on the Kootenai, Clark Fork and Bitterroot River Drainages. East of the Divide, spring and summer streamflows are forecast to be below average on most of the Jefferson and Madison Tributaries, the Missouri River, Upper Yellowstone River and the Bighorn River. Above average runoff is expected from most central Montana streams, the Milk River and streams flowing out of the north part of the Bighorn Mountains of Wyoming. The remaining drainages, east of the Divide, are forecast to produce near average flows.

SOIL MOISTURE

October rainfall prior to any accumulation of snowfall helped to increase moisture levels for soils under the snowpack. In general, watersheds in the northern part of the State have near to a little above average amount of mountain soil moisture. Those soils throughout the central and southcentral part of Montana have near to a little below average moisture. Soils in the southwestern watersheds show below average moisture levels.

KOOTENAI RIVER BASIN in Montana

Mountain precipitation was above average for October and November. December was below average. The season's accumulation over the basin is about 120 percent of average. The snowpack percentages do not reflect these conditions because some of the October moisture fell as rain before snowpacks started to accumulate and warm temperatures in mid-November melted a significant amount of the low elevation snow. Currently, the mountain snowpack varies from 50 to 90 percent of average in separate watersheds that drain into the Kootenai River. The moisture stored in the soil under the snow is about average. Storage in Lake Koocanusa is a little below average. Spring and summer streamflows are forecast to be below average on all drainages.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
KOOTENAI bl Libby Dam (2)	APR-JUL	3770	4950	5660	96	6370	7530	5885
	APR-SEP	4420	5860	6690	97	7520	8840	6903
FISHER nr Libby	APR-JUL	119	161	190	79	220	260	240
	APR-SEP	124	169	200	78	230	275	256
YAAK nr Troy	APR-JUL	225	310	370	75	430	515	494
	APR-SEP	235	330	390	75	450	545	517
KOOTENAI at Leonia (2)	APR-JUL	4770	6210	7120	97	8030	9470	7340
	APR-SEP	5490	7140	8190	97	924010900		8441

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
LAKE KOOCANUSA	5748.0	3037.0	2072.0	3255.0

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
EAST KOOTENAI in B.C.	8	135	89
KOOTENAI MAINTSTEM in MT	11	73	51
TOBACCO	2	77	65
FISHER	1	98	61
YAAK	4	88	53
KOOTENAI in MT	14	76	52
KOOTENAI ab Bonners Ferry	22	93	63

FLATHEAD RIVER BASIN

Since October 1, mountain precipitation has been about 130 percent of average. October amounts were above average, November was nearly twice average and December was a little below average. Some of the October moisture fell as rain prior to the accumulation of snowpack. In mid-November, warm temperatures melted much of the lower elevation snowpack that had accumulated. The snowpacks in various Flathead River drainages vary from about 60 to 90 percent of average. One exception is along the crest of the Mission Mountains where high elevation snowpack is a little above average. Spring and summer streamflows are forecast to be in the 85 to 90 percent of average range.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
NF FLATHEAD nr Columbia Falls	APR-JUL	1050	1290	1450	85	1610	1850	1701
	APR-SEP	1150	1420	1600	85	1780	2050	1880
MF FLATHEAD nr West Glacier	APR-JUL	1020	1270	1450	86	1630	1880	1680
	APR-SEP	1110	1390	1580	86	1770	2050	1836
SF FLATHEAD nr Columbia Falls (1)	APR-JUL	1280	1680	1860	88	2040	2440	2110
	APR-SEP	1360	1790	1980	88	2170	2600	2248
FLATHEAD at Columbia Falls (1)	APR-JUL	3650	4440	4860	86	5280	5900	5621
	APR-SEP	3970	4840	5290	87	5740	6420	6114
SWAN nr Bigfork	APR-JUL	415	485	535	90	585	655	597
	APR-SEP	480	560	615	90	670	750	683
FLATHEAD nr Polson (2)	APR-JUL	3950	5210	5740	87	6270	7240	6586
	APR-SEP	4290	5660	6230	87	6800	7870	7150

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
CAMAS (4)	45.2	14.8	6.2	19.2
MISSION VALLEY (8)	100.0	47.6	20.5	34.1
HUNGRY HORSE	3451.0	2525.0	1631.0	2649.0
FLATHEAD LAKE	1791.0	1358.0	887.0	1340.0

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
NORTH FORK FLATHEAD	4	88	76
MIDDLE FORK FLATHEAD	7	114	90
SOUTH FORK FLATHEAD	6	68	73
STILLWATER-WHITEFISH	2	75	66
SWAN	9	87	88
MISSION VALLEY	3	130	107
LITTLE BITTERROOT-ASHLEY	4	88	60
JOCKO	5	101	83
FLATHEAD	28	91	82

UPPER CLARK FORK RIVER BASIN

Mountain precipitation was a little above average for October and November but below average for December. The season's accumulation since October 1 is about 95 percent of average. The snowpacks vary from about 60 to 80 percent of average on smaller watersheds that feed into the Clark Fork. Moisture levels in the soil under the snowpack are a little below average on Clark Fork Tributaries above the Blackfoot River and near average on the Blackfoot River Drainage. Spring and summer streamflows are forecast to be in the 70 to 80 percent of average range on most drainages.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
MOULTON RESERVOIR inflow (2)	APR-JUN	99	141	170	72	199	240	237
	APR-JUL	108	154	186	71	220	265	263
WARM SPRINGS CK nr Anaconda (2)	APR-JUL	18.0	25	30	77	35	42	39
	APR-SEP	22	31	37	76	43	52	49
FLINT CK nr Southern Cross (2)	APR-JUL	5.3	8.8	11.2	76	13.6	17.1	14.8
	APR-SEP	6.0	10.2	13.1	74	16.0	20	17.8
FLINT CK bl Boulder Ck (2)	APR-JUL	24	38	48	79	58	72	61
	APR-SEP	30	49	61	78	74	92	78
LOWER WILLOW CK RES inflow (2)	APR-JUL	5.3	8.8	11.2	75	13.6	17.1	14.9
	APR-SEP	5.6	9.4	11.9	75	14.4	18.2	15.8
MF ROCK CK nr Philipsburg	APR-JUL	35	47	55	80	63	76	69
	APR-SEP	38	52	61	79	70	84	77
NEVADA CK nr Finn	APR-JUL	8.0	13.0	16.0	76	19.0	24	21
	APR-SEP	8.0	14.0	17.0	78	21	26	22
BLACKFOOT nr Bonner	APR-JUL	520	635	710	81	785	900	874
	APR-SEP	575	700	785	81	870	995	969
CLARK FORK ab Milltown (2)	APR-JUL	315	465	565	80	665	815	703
	APR-SEP	360	535	650	80	765	940	812
CLARK FORK ab Missoula	APR-JUL	610	1000	1270	81	1540	1930	1577
	APR-SEP	685	1130	1430	80	1730	2170	1781

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(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
GEORGETOWN LAKE	31.0	26.2	24.9	28.2
LOWER WILLOW CREEK	4.9	3.1	0.6	1.3
NEVADA CREEK		NO REPORT		

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
CLARK FORK ab FLINT CREEK	21	126	80
FLINT CREEK	9	111	76
ROCK CREEK	1	93	61
CLARK FORK ab BLACKFOOT	31	120	77
BLACKFOOT	15	94	73
UPPER CLARK FORK	43	110	75

BITTERROOT RIVER BASIN

October and December mountain precipitation were below average but November moisture was above average. Since October 1, the total accumulation has been about 85 percent of average. Snowpacks are well below average in all drainages and are in the 55 to 65 percent of average range. Soils under the snowpack are generally drier than normal. Storage in Lake Como is about average for this time of year. Spring and summer streamflows are expected to be in the 75 to 80 percent of average range.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE	CHANCE OF EXCEEDING *			---WETTER--->	
WF BITTERROOT nr Conner (2)	APR-JUL	70	96	114	78	132	158	147
	APR-SEP	75	105	125	74	145	175	169
BITTERROOT nr Darby	APR-JUL	255	345	410	78	475	565	524
	APR-SEP	280	380	450	79	520	620	573
SKALKAHO CK nr Hamilton	APR-JUL	29	34	38	83	42	47	46
	APR-SEP	33	40	44	81	48	55	54
BURNT FORK CK nr Stevensville (2)	APR-JUL	16.0	21	25	78	29	35	32
	APR-SEP	18.0	24	29	76	34	40	38
BITTERROOT at Missoula (2)	APR-JUL	660	905	1070	78	1240	1480	1371
	APR-SEP	725	990	1170	78	1350	1620	1497

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
PAINTED ROCKS LAKE		NO REPORT		
COMO	34.9	11.2	8.3	9.2

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
WEST FORK BITTERROOT	7	66	60
EAST SIDE BITTERROOT	2	84	57
WEST SIDE BITTERROOT	5	70	65
BITTERROOT	14	69	62

LOWER CLARK FORK RIVER BASIN

Since October 1, the total accumulation of mountain precipitation is about average. The October moisture was a little above average while November was well above average. December precipitation was below average. Warm weather in mid-November depleted some of the low elevation snowpack and some October precipitation fell as rain before snowpacks started to accumulate. Presently, the snowpack is about 55 percent of average on smaller streams that flow into the Clark Fork River below Missoula. The snowpack on larger upstream tributaries varies from 60 to 80 percent of average. Soils under the snowpack are generally drier than normal. Streamflows for this spring and summer are forecast to be 80 to 85 percent of average on most drainages.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE			--WETTER--->		
		-----	CHANCE OF	EXCEEDING	*	-----		
CLARK FORK ab Missoula	APR-JUL	610	1000	1270	81	1540	1930	1577
	APR-SEP	685	1130	1430	80	1730	2170	1781
CLARK FORK bl Missoula	APR-JUL	1640	2060	2340	79	2620	3040	2948
	APR-SEP	1820	2280	2600	79	2920	3380	3276
CLARK FORK at St. Regis	APR-JUL	1250	2380	3100	80	3820	4950	3894
	APR-SEP	1380	2640	3440	80	4240	5490	4325
CLARK FORK nr Plains (2)	APR-JUL	4670	7290	8990	83	10700	13300	10850
	APR-SEP	5130	8020	9890	83	11800	14700	11930
THOMPSON nr Thompson Falls	APR-JUL	118	155	180	81	205	240	222
	APR-SEP	131	172	200	80	230	270	250
PROSPECT CK at Thompson Falls	APR-JUL	63	86	101	79	116	139	128
	APR-SEP	67	92	108	79	125	149	137
CLARK FORK at Whitehorse Rapids (	APR-JUL	4860	7860	9810	81	11800	14700	12150
	APR-SEP	5350	8650	10800	81	12900	16200	13370

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
NOXON RAPIDS	335.0	321.3	318.4	318.1

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
UPPER CLARK FORK	43	110	75
BITTERROOT	14	69	62
LOWER CLARK FORK	17	69	54
CLARK FORK TOTAL	70	84	64
FLATHEAD	22	91	83
PEND OREILLE	92	86	70

JEFFERSON RIVER BASIN

Mountain precipitation since October 1 has been about 90 percent of average. October moisture was above average and did help improve mountain soil moisture. However, soils under the snowpack are still drier that normal. December mountain precipitation was about 60 percent of average over the basin. Lowest areas are in the head of the Red Rock River Drainage while snowpack in the Boulder River Headwaters is a little below average. Reservoir storage is currently about well below average. Spring and summer streamflows are forecast to be about 75 to 85 percent of average from most of the watersheds with near average runoff expected on the Boulder River.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
RED ROCK RIVER near Monida (2)	APR-JUL	35	58	74	70	90	113	105
	APR-SEP	37	63	81	71	99	125	114
BEAVERHEAD RIVER near Grant (2)	APR-JUL	19.0	71	107	72	143	196	149
	APR-SEP	23	86	128	74	171	230	174
BEAVERHEAD RIVER at Barratts (2)	APR-JUL	48	108	148	77	188	250	192
	APR-SEP	59	128	175	78	220	290	224
RUBY RIVER near Alder	APR-JUL	56	70	80	90	90	105	89
	APR-SEP	64	83	95	90	108	126	106
BIG HOLE RIVER near Melrose	APR-JUL	335	470	560	80	650	785	696
	APR-SEP	375	515	610	81	705	845	757
BOULDER RIVER near Boulder	APR-JUL	43	70	89	98	108	135	91
	APR-SEP	45	75	95	98	115	145	97
WILLOW CREEK near Harrison	APR-JUL	8.0	13.0	16.4	88	19.8	25	18.7
	APR-SEP	9.0	15.0	19.0	88	22	28	21
JEFFERSON RIVER near Three Forks	APR-JUL	445	695	860	83	1030	1270	1042
	APR-SEP	505	765	940	81	1120	1370	1156

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
LIMA	84.0	18.0	8.8	35.3
CLARK CANYON	255.6	73.5	96.4	142.2
RUBY RIVER	38.8	15.4	16.4	20.3

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
BEAVERHEAD	20	35	44
RUBY	5	90	80
BIGHOLE	18	86	67
BOULDER	11	141	91
JEFFERSON	46	60	60

MADISON RIVER BASIN

Currently, the snowpack is well below average in the southern part of the drainage and below average in the Madison and Gravelly Ranges. October mountain precipitation was above average but November and December brought well below levels. The total mountain precipitation since October 1 is about 85 percent of average. Soils under the snowpack are a little drier than normal. Spring and summer streamflows are forecast to be in the 80 to 85 percent of average range.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
MADISON RIVER near Grayling (2)	APR-JUL	245	285	315	81	345	385	390
	APR-SEP	325	375	410	82	445	495	499
MADISON RIVER near McAllister (2)	APR-JUL	450	520	565	83	610	680	680
	APR-SEP	580	665	720	84	775	860	856

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The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
ENNIS LAKE	41.0	29.8	28.3	34.4
HEBGEN LAKE	377.5	252.1	265.1	242.1

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
MADISON above HEBGEN	14	57	61
LOWER MADISON	9	94	87
MADISON	23	69	71

GALLATIN RIVER BASIN

Mountain precipitation over the drainage was above average for October and near to a little above average for November and December. Since October 1, the total precipitation accumulation is about 115 percent of average. Currently, the snowpack is about average over the drainage but the northern part of the watershed has a little better snowpack than the southern reaches of the Gallatin River. Soils under the snowpack are a little drier than normal. Storage in the Middle Creek Reservoir is above average. Spring and summer streamflows are forecast to be a little above average on most streams.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
GALLATIN RIVER near Gateway	APR-JUL	375	430	470	102	510	565	460
	APR-SEP	455	515	555	103	595	655	540
E & W FK. HYALITE CR. nr Bozeman	APR-JUL	21	24	26	108	28	32	24
	APR-SEP	24	28	30	107	32	36	28
HYALITE CREEK near Bozeman (2)	APR-JUL	31	37	41	108	45	51	38
	APR-SEP	37	43	47	107	51	57	44
GALLATIN RIVER at Logan	APR-JUL	375	480	550	104	620	725	528
	APR-SEP	465	575	645	105	720	825	616

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The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
MIDDLE CREEK	8.0	4.8	4.9	3.1

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
UPPER GALLATIN	9	114	94
EAST GALLATIN	11	143	108
GALLATIN	17	122	101

MAINSTEM MISSOURI RIVER BASIN

Mountain precipitation was above average for October and November and near average for December. Since October 1, precipitation has totaled about 110 percent of average. The present snowpack on tributary streams is about average. However, the Missouri River Headwaters have below average snowpack. Soils under the snowpack are a little drier than normal. Storage in Canyon Ferry Reservoir is a little below average. Spring and summer streamflows are forecast to be below average on the Missouri River and near average on smaller tributaries flowing into the Missouri.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE				---WETTER--->	
		-----	CHANCE OF EXCEEDING *				-----	
MISSOURI RIVER at Toston (2)	APR-JUL	1260	1650	1920	85	2190	2580	2250
	APR-SEP	1500	1940	2250	87	2560	3030	2590
PRICKLY PEAR CREEK nr Clancy	APR-JUL	7.0	18.0	25	96	32	43	26
	APR-SEP	9.0	21	29	94	37	49	31
SUN RIVER at Gibson Dam (2)	APR-JUL	280	395	475	96	555	670	494
	APR-SEP	315	440	520	96	600	725	542
MISSOURI RIVER at Fort Benton (2)	APR-JUL	1670	2430	2960	85	3470	4230	3470
	APR-SEP	2000	2870	3480	87	4070	4950	3990
MARIAS RIVER near Shelby (2)	APR-JUL	188	360	475	99	590	760	478
	APR-SEP	220	385	500	100	615	780	501
MISSOURI RIVER at Virgelle (2)	APR-JUL	1900	2810	3440	87	4200	5310	3960
	APR-SEP	2210	3240	3950	88	4820	6080	4500
MISSOURI RIVER near Landusky (2)	APR-JUL	2070	3100	3790	88	4650	5950	4310
	APR-SEP	2400	3580	4380	89	5340	6810	4900
MISSOURI RIVER below Fort Peck (2)	APR-JUL	1960	3020	3750	88	4640	6010	4260
	APR-SEP	2260	3460	4280	89	5280	6820	4800
LAKE SAKAKAWEA Inflow (2)	APR-JUL	6050	8580	10300	94	12200	15000	11000
	APR-SEP	6830	9640	11600	95	13700	16700	12200

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
CANYON FERRY LAKE	2043.0	1533.0	1426.0	1719.0
HELENA VALLEY	9.2	4.0	5.1	5.7
LAKE HELENA	10.4	10.7	10.7	10.3
HAUSER & HELENA	61.9	62.5	62.4	61.4
HOLTER LAKE	81.9	81.4	80.0	75.8
FORT PECK LAKE	18.9	11.5	12.8	15.4

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
MISSOURI HEADWATERS	77	72	70
WEST SIDE MISSOURI	9	141	99
SMITH-BELT	5	141	100
MAINSTEM MISSOURI	14	141	100
SUN-TETON-MARIAS	8	113	90
JUDITH-MUSSELSHELL	8	192	111
MISSOURI above FORT PECK	97	82	76
MILK RIVER	12	146	90
MISSOURI in MONTANA	106	85	77
MISSOURI blw YELLOWSTONE	158	98	84

SMITH-JUDITH-MUSSELSHELL RIVER BASINS

Since October 1, mountain precipitation has been about 135 percent of average with heaviest amounts coming in December. Eastern watersheds have received better moisture than western areas. Snowpack are near to a little above average in the Smith River Headwaters increasing to well above average in the Snowy Mountains. Soils under the snow are a little drier than average over most of the area. Spring and summer streamflows are forecast to be a little above average.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE	CHANCE OF EXCEEDING *			---WETTER--->	
SMITH RIVER nr Ft. Logan	APR-JUL	39	62	78	115	94	117	68
	APR-SEP	49	74	91	114	108	133	80
SHEEP CREEK nr White Sulphur Sprg	APR-JUL	16.4	19.2	21	112	23	26	18.8
	APR-SEP	20	23	25	114	27	30	22
N.F. MUSSELSHELL near Delphine	APR-JUL	3.8	5.4	6.4	114	7.4	9.0	5.6
	APR-SEP	4.4	6.2	7.4	116	8.6	10.4	6.4
S.F. MUSSELSHELL above Martinsdale	APR-JUL	31	52	67	118	82	103	57
	APR-SEP	35	57	72	118	87	110	61

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
SMITH RIVER	10.6	2.8	1.4	6.4
NEWLAN CREEK	12.4	8.8	7.0	8.8
BAIR	7.0	6.0	0.6	3.8
MARTINSDALE	23.1	10.0	0.2	9.8
DEADMAN'S BASIN	72.2	25.4	10.6	42.6

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
SMITH-BELT	5	141	100
JUDITH-MUSSELSHELL	8	192	111

SUN-TETON-MARIAS RIVER BASINS

Since October 1, the mountain precipitation has been about 135 percent of average. October was near average, November was over twice the average amount and December was about 75 percent of average. The amount of water stored in the snowpack is a little below average with northern tributaries having a little better conditions than southern watersheds. Soils under the snowpack are a little wetter than normal. Storage facilities have near to above average water levels. Spring and summer streamflows are forecast to be average on most tributaries.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---		FUTURE		--WETTER--->		
		-----		CHANCE OF EXCEEDING *		-----		
SUN RIVER at Gibson Dam (2)	APR-JUL	280	395	475	96	555	670	494
	APR-SEP	315	440	520	96	600	725	542
TWO MEDICINE CREEK near Browning	APR-JUL	112	173	215	97	255	320	222
	APR-SEP	121	183	225	96	265	330	235
BADGER CREEK near Browning (2)	APR-JUL	68	96	115	107	134	162	107
	APR-SEP	82	113	133	108	154	184	123
SWIFT RESERVOIR INFLOW nr Dupuyer	APR-JUL	36	58	73	104	88	110	70
	APR-SEP	48	70	86	105	102	125	82
DUPUYER CREEK near Valier	APR-JUL	0.2	10.2	18.0	107	26	37	16.9
	APR-SEP	0.2	11.8	20	107	28	40	18.7
CUT BANK CREEK at Cut Bank	APR-JUL	48	75	93	101	111	138	92
	APR-SEP	58	85	104	104	123	150	100
MARIAS RIVER near Shelby (2)	APR-JUL	188	360	475	99	590	760	478
	APR-SEP	220	385	500	100	615	780	501

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
GIBSON	99.1	59.8	17.4	39.6
PISHKUN	32.0	18.9	19.9	18.4
WILLOW CREEK	32.2	30.0	22.8	20.1
LOWER TWO MEDICINE LAKE	11.9	12.0	11.9	7.4
FOUR HORNS LAKE	19.2	13.2	14.0	12.2
SWIFT	30.0	20.5	9.8	12.0
LAKE FRANCES	112.0	92.8	41.8	68.6
LAKE ELWELL (TIBER)	1347.0	805.6	650.8	562.8

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
SUN-TETON	3	99	83
MARIAS	5	118	92
SUN-TETON-MARIAS	8	113	90

ST. MARY and MILK RIVER BASINS

Mountain precipitation since October 1 has been above average over the areas with the largest increments coming in November. The Bear Paw Mountains have received nearly twice average amounts while the Milk and St. Mary Headwaters show a little above average moisture. Snowpacks are a little below average in the St. Mary and Milk River Headwaters and above average in the Bear Paw Mountains. Generally, soils under the snow are wetter than normal. Beaver Creek and Nelson Reservoirs have near average storage while Lake Sherburne and Fresno have above average levels. Spring and summer streamflows are expected to be a little below average.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE		--WETTER--->			
		-----	CHANCE OF EXCEEDING *			-----		
SWIFTCURRENT CREEK at Sherburne(2)	APR-JUL	79	90	98	89	106	117	110
	APR-SEP	98	109	116	91	123	134	128
ST. MARY RIVER near Babb (2)	APR-JUL	285	330	360	89	390	435	404
	APR-SEP	350	400	430	91	460	510	474
MILK RIVER at Eastern Crossing (2)	MAR-SEP	80	98	110	113	131	164	97
MILK RIVER at Eastern Crossing	MAR-SEP	220	260	285	106	330	390	270

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
LAKE SHERBURNE	64.3	30.0	25.9	18.8
FRESNO	127.0	79.8	8.4	53.5
BEAVER CREEK	3.5	2.1	0.5	1.8
NELSON	66.8	39.6	4.2	38.9

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
MILK HEADWATERS	5	112	75
BEAR PAW	7	315	135
MILK RIVER	12	146	90
ST. MARY	6	115	81
ST. MARY and MILK	13	138	91
BOW RIVER in ALBERTA	0	0	0
OLDMAN RIVER in ALBERTA	0	0	0

UPPER YELLOWSTONE RIVER BASIN

Mountain precipitation was above average in October and November and near average in December. The accumulation since October 1 is about 115 percent of average. Snowpacks are better on the downstream tributaries than on the Yellowstone River above Livingston. Snowpack for the drainages above Billings is a little below average. Soils under the snowpack are generally a little drier than normal in the upper reaches of the Yellowstone River and about average on downstream tributaries. Spring and summer streamflows are forecast to be in the 85 to 90 percent of average ranges in the upper reaches of the basin increasing to a little above average flows from some downstream tributaries.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
YELLOWSTONE at Lake Outlet	APR-JUL	355	450	515	87	580	675	590
	APR-SEP	485	615	705	86	795	925	818
YELLOWSTONE at Corwin Springs	APR-JUL	1110	1350	1510	92	1670	1910	1650
	APR-SEP	1340	1620	1810	91	2000	2280	2000
YELLOWSTONE at Livingston	APR-JUL	1330	1620	1810	94	2000	2290	1920
	APR-SEP	1630	1960	2180	94	2400	2730	2330
SHIELDS RIVER near Livingston	APR-JUL	69	128	169	101	210	270	168
	APR-SEP	84	146	188	101	230	290	187
BOULDER RIVER at Big Timber	APR-JUL	260	325	365	103	405	470	353
	APR-SEP	285	350	395	103	440	505	384
WEST ROSEBUD CREEK near Roscoe	APR-JUL	49	58	64	100	70	79	64
	APR-SEP	66	76	83	100	90	100	83
STILLWATER RIVER nr Absarokee (2)	APR-JUL	370	470	535	102	600	700	524
	APR-SEP	470	575	645	103	715	825	625
CLARKS FORK RIVER near Belfry	APR-JUL	405	500	560	104	620	715	540
	APR-SEP	460	560	625	104	690	790	603
RED LODGE CREEK near Boyd (2)	APR-JUL	24	41	53	108	65	82	49
	APR-SEP	35	52	64	107	76	93	60
YELLOWSTONE RIVER at Billings (2)	APR-JUL	2770	3370	3740	100	4110	4680	3740
	APR-SEP	3260	3970	4410	100	4850	5510	4410

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
MYSTIC LAKE	21.0	8.0	7.6	12.5
COONEY	27.4	20.6	18.0	13.3

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
YELLOWSTONE ab LIVINGSTON	18	105	88
SHIELDS	6	130	99
BOULDER-STILLWATER	3	124	115
CLARK'S FORK-ROCK CREEK	13	128	93
YELLOWSTONE above BIGHORN	35	117	93

LOWER YELLOWSTONE RIVER BASIN

Since October 1, mountain precipitation has totaled about 150 percent of average in the Bighorn Mountains. December moisture was nearly twice the average amount. Snowpacks vary from below average in the Upper Wind to well above average in the headwaters of the Little Bighorn and Tongue River Drainages. Soils under the snow have about average levels of moisture. Spring and summer streamflows are expected to be near average from the Bighorn and Yellowstone Rivers and near to above average on the Tongue, Powder and Little Bighorn Rivers.

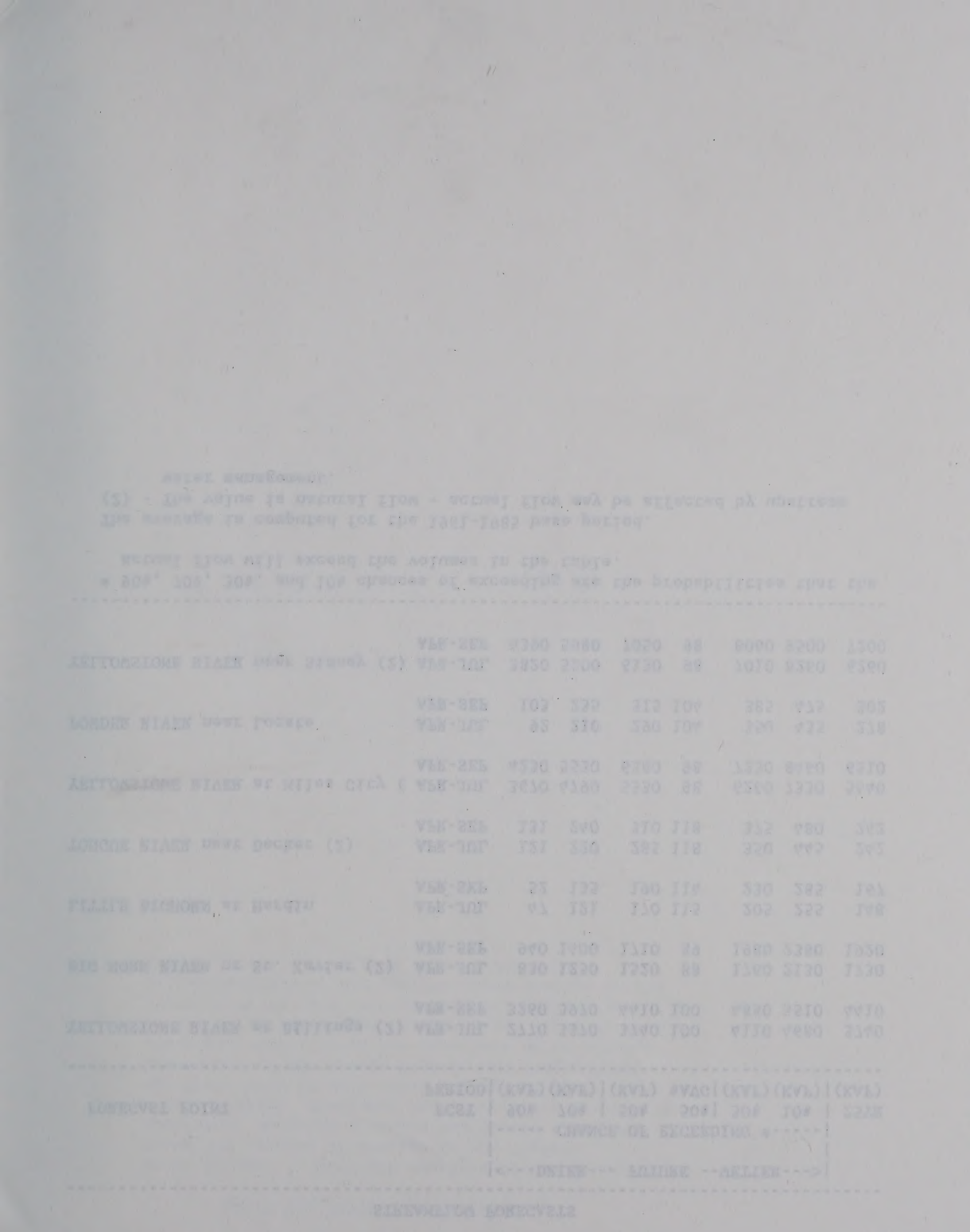
STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
YELLOWSTONE RIVER at Billings (2)	APR-JUL	2770	3370	3740	100	4110	4680	3740
	APR-SEP	3260	3970	4410	100	4850	5510	4410
BIG HORN RIVER nr St. Xavier (2)	APR-JUL	830	1250	1520	88	1760	2130	1730
	APR-SEP	940	1400	1710	89	1980	2380	1920
LITTLE BIGHORN at Hardin	APR-JUL	47	121	170	115	205	255	148
	APR-SEP	52	135	190	114	230	285	167
TONGUE RIVER near Decker (2)	APR-JUL	121	220	285	118	350	445	242
	APR-SEP	131	240	310	118	375	480	262
YELLOWSTONE RIVER at Miles City (	APR-JUL	3670	4790	5530	98	6260	7330	5640
	APR-SEP	4230	5530	6380	98	7230	8460	6510
POWDER RIVER near Locate	APR-JUL	92	210	290	104	350	435	278
	APR-SEP	103	235	315	104	385	475	302
YELLOWSTONE RIVER near Sidney (2)	APR-JUL	3820	5200	6130	98	7010	8260	6260
	APR-SEP	4390	5980	7050	98	8060	9500	7200

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
BIGHORN LAKE	1356.0	864.0	753.2	730.1
TONGUE RIVER		NO REPORT		

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
BIG HORN (Wyoming)	29	125	95
LITTLE BIGHORN	2	199	145
TONGUE RIVER (Wyoming)	5	207	139
POWDER RIVER (Wyoming)	7	195	123
YELLOWSTONE RIVER	64	127	98